

Serial Number: 10/771,674
Response to Office action of September 24, 2007

Remarks

PLEASE NOTE: THE CHANGES FROM THE PREVIOUS REMARKS RELATE ONLY TO PAGE NUMBERS. THESE CHANGES ARE IN BOLDFACE.

Paragraph 2: Objection under 37 CFR 1.75(d)(1) and MPEP 608.01(o)

It is respectfully submitted that the amendments to the specification overcome this rejection.

Paragraph 4: rejection of claims 1-3, 6-8 under 35 U.S.C. 103(a)

Claims 1-8 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Okada et al. (US 6,120,983), Tsuzuki (US 5,677,121), Siga (US 4,332,889), Tsukada (2002/0058220A1), Winslow et al (US 5,891,615) and Purol et al (US 5,236,816).

Paragraph 5: rejection of claims 4-5 under 35 U.S.C. 103(a)

Claims 4-5 were rejected as unpatentable over Okada et al.(US-6,120,983), Tsuzuki (US 5,677,121), Tsukada (2002/0058220A1), Winslow et al (US 5,891,615), and Purol et al (US 5,236,816), as applied in paragraph 6, and further in view of Siga (US-4,332,889).

Paragraph 6: rejection of claims 9-11, 15-18 under 35 U.S.C. 103(a)

Claims 9-11, 15-18 were rejected under 35 U.S.C. 103(a) as obvious over the combination of Okada et al.(US 6,120,983), Winslow et al (US 5,891,615) and Purol et al (US 5,236,816).

The compound having an adsorptive group to silver halide and a reducing group in the present invention is represented by the following formula (I):

A-(W)_n-B formula (I)

wherein, in the formula, A represents a group adsorptive to silver halide, W represents a

Serial Number: 10/771,674
Response to Office action of September 24, 2007

divalent linking group, n represents 0 or 1, and B represents a reducible group, wherein the group adsorptive to silver halide is a heterocyclic group substituted by a mercapto group, a heterocyclic group substituted by two mercapto groups, or a nitrogen atom containing heterocyclic group having a -NH- group capable to form an imino-silver (>NAg) as a partial structure of heterocyclic ring, and the reducible group is 3-pyrazolidone group.

The compound having an adsorptive group to silver halide and a reducing group in the present invention has effects in photothermographic material to achieve high sensitivity with low fog, and excellent image stability, such as decreased print-out.

In the Examples in the applied specification, Sample Nos. 11, 13, 19, 21, 29 and 35 in Table Nos. 2 to3, Sample Nos. 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145 and 147 in Table Nos. 4 to7, or Sample Nos. 161, 162, 165 and 166 in Table No. 8 are samples in the invention which contains Compound No.71 having an adsorptive group to silver halide and 3-pyrazolidone group as a reducing group. It is clearly disclosed as recited below that the photothermographic material in the invention results unexpectedly remarkable high sensitivity with low fog, and unexpected excellent image stability, such as decreased print-out.

On page 226, lines 15-19, it is stated: "It was an unexpected result that quite a low increment of fogging and a high sensitivity are obtained by use of a compound having an adsorptive group and a reducible group in the case the glass transition temperature (Tg) of the binder is 45°C or more."

On page 247, lines 6-13 it is stated: "Particularly, using the compound having an adsorptive group and a reducible group gives an effect of maintaining high sensitivity and excellent image stability, however the effect was small in the case using silver halide emulsion not containing iridium, but in the case using silver halide emulsion containing iridium, the effect was evident and that was an unexpected result."

On page 257, lines 11-14 it is stated: "This effect by using the compound having an

Serial Number: 10/771,674
Response to Office action of September 24, 2007

adsorptive group and a reducible group in combination with iridium was the one that could not be expected from conventional knowledge."

Okada discloses a compound of the formula: X-L₁-D, wherein D is an electron donative group, X is an adsorption promoting group, and L₁ is a valence bond or linking group in columns 12-20, and compounds 1 to 55. The electron donative group represented by D is preferably an amino group, a hydrazino group, a hydroxylamino group, a hydroxamic acid group, a semicarbazido group or a hydroxyl-semicarbazido. More preferably, D is an amino group, a hydrazino group or a semicarbazido group (column 5, lines 1-8). Okada does not disclose a compound having a 3-pyrazolidone group as an electron donative group.

The compound of formula X-L₁-D in Okada is a super-sensitizer which ensures sufficient super-sensitization effects in the red to infrared region, especially in the practically advantageous infrared region in the range of 750nm to 1400nm (column 3, lines 10-14, column 28, lines 19-20).

Tsuzuki, Siga and Tsukada also do not disclose or suggest a compound having an adsorption group to silver halide and a reducing group as in the present invention.

Winslow discloses a 3-pyrazolydone as a reducing agent for organic silver salt. Purol discloses phenidone as a developing agent contained in developing solution in conventional wet-processing photography.

In Winslow or Purol, 3-pyrazolidone/phenidone is an independent molecule.

In contrast, the compound having an adsorptive group to silver halide and a reducing group in the present invention has a 3-pyrazolidone group as one part of a molecule.

A declaration under 37C.F.R.1.132 accompanies this response. The results

Serial Number: 10/771,674
Response to Office action of September 24, 2007

obtained by the additional experiments set forth in the declaration demonstrate that a compound having an adsorptive group to silver halide and a 3-pyrazolidone group as a reducing group according to the present invention has resulted in unexpectedly high sensitivity combined with low fog, and unexpectedly excellent image stability, such as decreased print-out in photothermographic material. In contrast, a 3-pyrazolidone reducing agent resulted in an increase of fog without increase of sensitivity, and degradation in image stability.

Therefore, the combination of Okada, Tsuzuki, Tsukada, Winslow or Purol does not teach or suggest the present invention, and it would not have been obvious for a worker of ordinary skill in the art to create the present invention based on the combination of any of Okada, Tsuzuki, Tsukada, Winslow or Purol.

In view of the foregoing amendments and remarks, it is respectfully submitted that all of the pending claims are in condition for allowance. Favorable action is respectfully requested.

Respectfully submitted,



Margaret Burke
Registration No. 34,474

Taiyo, Nakajima & Kato
401 Holland Lane, Suite 407
Alexandria, VA 22314
703-838-8013
November 2, 2007